

PRAIRIE PROVINCES WATER BOARD

NINETEENTH

ANNUAL REPORT

FOR THE CALENDAR YEAR 1966

**May, 1967
Regina, Saskatchewan**

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A. G. UNDERHILL

George Underhill died March 28, 1966, in a helicopter crash near Drumheller. At the June 2, 1966, meeting, Members recorded his tragic passing in the course of his duty with regret. The Board expressed its deep appreciation of the work Mr. Underhill had done in the many Board Committees on which he had served.

F. L. GRINDLEY

J. A. GRIFFITHS

Frank Grindley and Jack Griffiths have both passed away since the last meeting of the Board. Undoubtedly, the passing of these esteemed Members will be duly recorded and their memories honoured at the next meeting of the Board.

MEMBERSHIP OF THE BOARD

The Prairie Provinces Water Board is composed of five members. The three provincial members represent the Provinces of Alberta, Saskatchewan and Manitoba, and the two federal members represent the Department of Agriculture, and the Department of Energy, Mines and Resources. The Engineering Secretary to the Board is employed by the Prairie Farm Rehabilitation Administration (Canada Department of Agriculture). During 1966, the following persons served on the Board:

M. J. Fitzgerald (Chairman)	Director, PFRA Canada Department of Agriculture Regina, Saskatchewan
R. H. Clark	Chief, Engineering Division Inland Waters Branch Department of Energy, Mines and Resources Ottawa, Ontario
R. E. Bailey (replacing F. L. Grindley)	Director, Department of Water Resources Province of Alberta Edmonton, Alberta
B. W. Boyson	Director, Water Rights Branch Saskatchewan Water Resources Commission Province of Saskatchewan Regina, Saskatchewan
T. E. Weber (replacing J. A. Griffiths)	Director, Water Control & Conservation Branch Department of Agriculture & Conservation Province of Manitoba Winnipeg, Manitoba
C. Booy (resigned Sept. 1966)	Engineering Secretary to the Board Chief, Hydrology Division, PFRA Canada Department of Agriculture Regina, Saskatchewan
J. G. S. McMorine (Acting from Sept. 1966)	Acting Engineering Secretary to the Board Acting Chief, Hydrology Division, PFRA Canada Department of Agriculture Regina, Saskatchewan

WARRANT AND FUNCTION OF THE BOARD

The Prairie Provinces Water Board was established on 28 July 1948 by agreement between the Governments of Canada, Manitoba, Saskatchewan and Alberta. A copy of that agreement is attached to the Sixteenth Annual Report as Appendix I.

The Board's function, as expressed in that agreement, is "to recommend the best use to be made of interprovincial waters in relation to associated resources in Manitoba, Saskatchewan and Alberta and to recommend the allocation of water as between each such province of streams flowing from one province into another province."

The duties of the Board are set out in detail in the agreement. Briefly they are:-

- (a) to collate and analyze existing data;
- (b) to determine what other data are required from time to time;
- (c) to recommend the allocation of water of any interprovincial stream; and
- (d) to report on any questions relating to projects for the utilization or control of common river or lake systems.

REVIEW OF ACTIVITIES IN 1966

MEETINGS IN 1966

The Board held two meetings in 1966; one in Edmonton on 8 February and one in Winnipeg on 2 June.

ENGINEERING SECRETARY

Mr. C. Booy resigned from his position with PFRA in September in order to take up an appointment with the University of Manitoba. Mr. J. G. S. McMorine of the Hydrology Division, PFRA, has subsequently been acting as Engineering Secretary.

APPOINTMENT OF ALBERTA AND MANITOBA MEMBERS

By Order-in-Council No. 1894/65, Mr. T. E. Weber was appointed alternate representative to act in the absence of Mr. J. A. Griffiths, Member for Manitoba, with effect from 1 January 1966.

By Order-in-Council No. 350/66, Mr. R. E. Bailey was appointed to succeed Mr. F. L. Grindley, as Member for Alberta, with effect from 28 February 1966.

ALBERTA REQUEST FOR ALLOCATION REVISIONS

During 1966, the Chairman and Engineering Secretary endeavoured, by correspondence and discussion with the Members concerned, to arrive at a compromise solution to this problem. Additional discussions between the Alberta and Saskatchewan Members have not been concluded and the matter remains unresolved for the time being.

APPORTIONMENT COMMITTEE

Early in 1966, the Apportionment Committee submitted its report entitled "Apportionment of the Water of Interprovincial Streams between the Provinces of Alberta, Manitoba and Saskatchewan." This report was prepared in accordance with the instructions of the Board given in Minutes 28-09 and 29-12.

After certain revisions had been made, the Board accepted the report as a working paper for further discussions of the apportionment problem.

"AD HOC" COMMITTEE REPORT - DATA NETWORK PLANNING COMMITTEE

The "Ad Hoc" Committee, in accordance with the instructions of the Board contained in Minute 32-11, submitted its report at the February, 1966 meeting of the Board. The Committee had been instructed to "prepare recommendations on procedures and terms of reference" with regard to "long-range planning and interprovincial co-ordination of hydrometrical and meteorological requirements of Joint Interest to the Prairie Provinces." After revision, the Board accepted the report at its meeting of June, 1966.

In accordance with the recommendations of the report, the Board established a "Data Network Planning Committee." The first meeting of this committee was convened by the Engineering Secretary at Winnipeg on 22 August 1966. The report of this meeting will be presented to the Board in due course.

ADVISORY COMMITTEE ON SURFACE WATER DATA REQUIREMENTS

Early in 1966, the Chairman advised the Deputy Minister, Canada Department of Northern Affairs and National Resources, of the interest of the Board in the committee established by his Department. Members of the Board have duly accepted the invitation to appoint representatives to this committee.

POLLUTION COMMITTEE

At the September, 1965, meeting of the Board, Minute 32-10, the committee was instructed to prepare an interim report outlining the situation at that time. The committee presented this interim report at the June, 1966, meeting of the Board. It is hoped, in the light of Members' written comments to the Chairman of the committee, to prepare a final report more in accordance with the instructions of the Board given at its meeting of March, 1964, Minute 27-07.

QU'APPELLE-ASSINIBOINE STUDY

This study was completed during 1966, and a report and appendix have been presented to the Board.

OTHER REPORTS AND STUDIES

1. At the February, 1966, meeting of the Board, the Engineering Secretary was instructed to update PFWB Report No. 1 entitled "Recorded and Natural Monthly Flows at certain points on the Saskatchewan River System." This assignment has been completed and presented as PFWB Report No. 1A entitled "Summary Report of Natural Yearly Flows at certain points on the Saskatchewan River System, by Calendar Year, for the Period 1912-1963 inclusive."
2. Completion of a report by Dr. Laycock on "Water Surplus and Deficiency Patterns in the Prairie Provinces" is anticipated early in 1967.

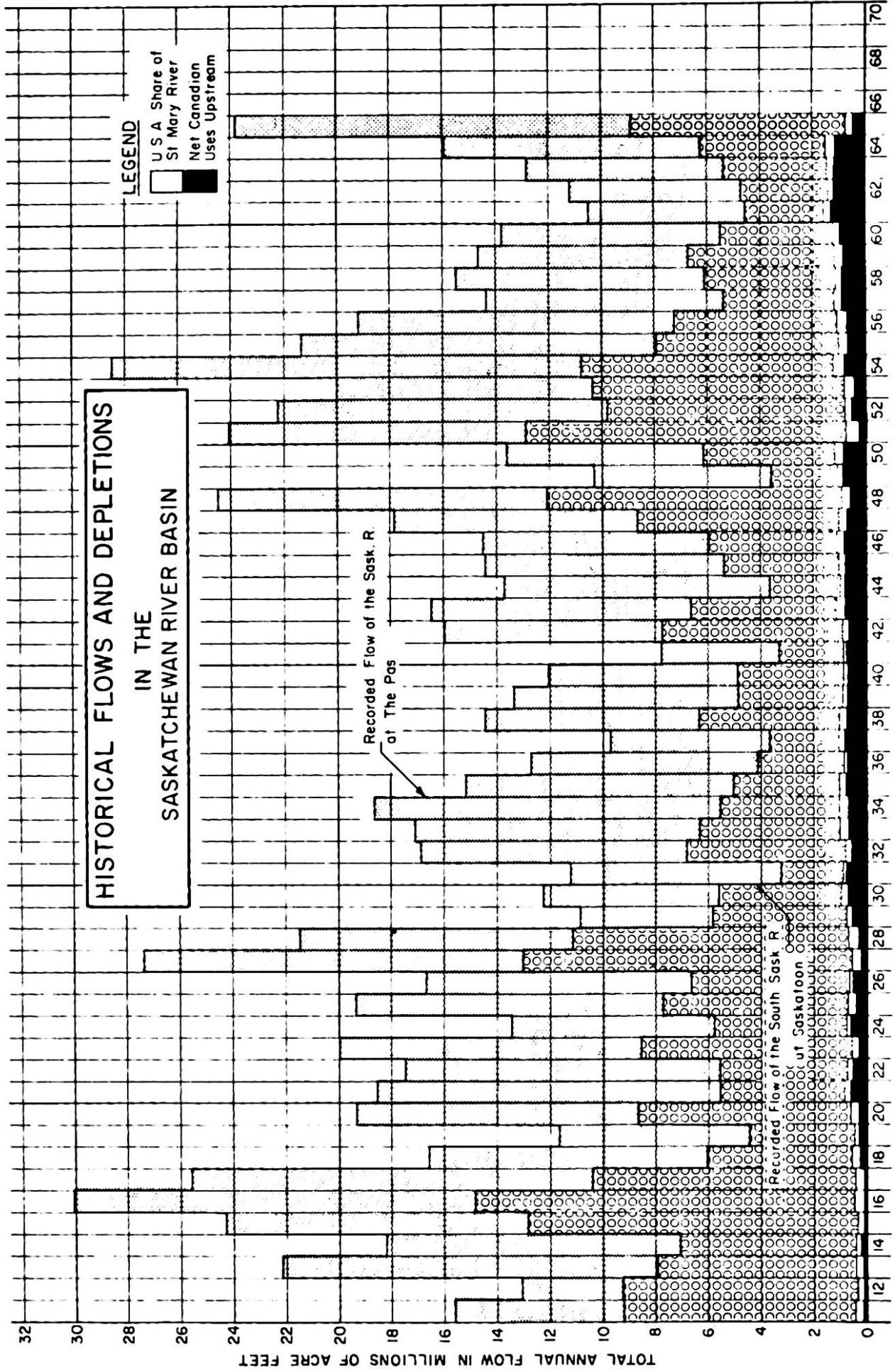
3. An estimate of streamflow depletions for the Saskatchewan River System is kept current by the Engineering Secretariat. A chart on the following page provides a graphical comparison between these depletions and the recorded flows at Saskatoon and The Pas.
4. A tabulation of "Acreage Actually Irrigated" in the Alberta portion of the South Saskatchewan Basin has been prepared and may be found immediately following the flows and depletions graph. The tabulation is based primarily on material supplied by the Alberta Water Resources Branch.



M. G. Fitzgerald
Chairman



J. G. S. McMorine
Acting Engineering Secretary



ACREAGE ACTUALLY IRRIGATED IN ALBERTA 1911 - 1972

YEAR	ST. MARY	WESTERN I.D.	EASTERN I.D.	BOW RIV. DEVELOP.	L. N. I.D.	U.I.D.	M. V. I.D.	L.I.D.	A. I.D.	MACLEOD I.D.	ROSS CR. I.D.	TOTAL
1911	47,000	500										47,500
12	76,200	500										76,700
13	76,200	2,600										78,800
14	76,200	8,448	7,806									92,454
15	76,200	512	7,800									84,512
16	71,281	859	1,497									73,637
17	91,780	3,657	9,005									104,442
18	102,900	25,191	24,440									152,531
19	112,569	31,908	43,460									187,937
1920	62,893	4,083	60,762	4,240								131,978
21	85,902	33,619	88,299	9,400								217,220
22	88,680	49,752	93,375	9,509								241,316
23	75,968	3,074	42,928	11,249	6,963							140,182
24	84,751	24,297	84,200	9,720	29,991	5,264						238,223
25	94,582	5,384	72,994	13,252	43,628	10,000						239,840
26	92,782	19,561	74,401	13,467	56,395	10,026						266,632
27	22,176	1,273	7,921	810	10,012	41						42,233
28	31,924	3,892	45,677	19,361	33,436	2,576						136,866
29	46,441	37,395	78,610	29,260	61,231	3,102						256,039
1930	98,483	41,570	89,913	27,102	70,007	5,847						332,922
31	100,403	47,593	90,724	29,803	70,408	12,983	300					352,214
32	99,788	8,680	90,651	26,379	41,842	11,500	800					279,640
33	104,854	40,812	96,019	21,917	62,416	10,500	1,168					337,686
34	105,490	31,131	101,566	22,208	54,200	10,000	1,950					326,545
35	93,471	19,109	143,997	22,694	73,022	12,000	3,000					367,293
36	111,397	44,614	111,781	26,660	62,790	18,000	2,900					378,142
37	113,546	50,866	124,645	30,107	70,020	17,500	3,500					410,184
38	112,629	35,755	133,928	33,326	73,297	10,000	3,500					402,435
39	110,677	11,647	141,688	34,984	56,712	10,000	3,200					368,908
1940	115,030	20,134	138,462	37,906	76,492	10,500	3,000					401,524
41	109,148	21,144	156,501	35,312	63,575	11,000	3,300					399,980
42	103,183	9,194	166,453	32,946	31,102	12,000	3,400					358,278
43	112,142	7,666	168,496	35,143	67,777	14,000	3,254					408,478
44	112,550	20,000	167,094	37,266	75,927	13,000	3,400	526				429,763
45	112,484	20,000	167,100	38,838	57,126	13,000	3,300	1,000				412,848
46	112,734	19,000	166,326	42,457	64,894	7,453	3,300	1,300				417,464
47	110,848	20,000	168,580	43,594	57,434	7,453	3,300	1,300				412,509
48	109,571	12,000	172,200	44,160	55,374	2,970	3,700	1,500				401,475
49	107,150	26,197	180,000	44,050	72,807	21,000	3,300	1,500				456,004
1950	111,513	23,079	180,000	36,508	78,721	9,758	3,500	2,500				445,579
51	104,571	1,000 ⁽¹⁾	153,804 ⁽¹⁾	24,283 ⁽¹⁾	21,979 ⁽¹⁾	1,869 ⁽¹⁰⁰⁾	200			0	0	307,806
52	117,261	700 ⁽¹⁾	149,289 ⁽¹⁾	40,416 ⁽¹⁾	35,314 ⁽¹⁾	6,072 ⁽¹⁾	3,350	940		1,600	850	355,792
53	112,779	500 ⁽¹⁾	114,776 ⁽¹⁾	140,000 ⁽¹⁾	37,409 ⁽¹⁾	8,894 ⁽¹⁾	3,380	980		1,800	1,100	321,618
54	152,489	1,900 ⁽¹⁾	156,884 ⁽¹⁾	140,000 ⁽¹⁾	58,745 ⁽¹⁾	10,033 ⁽¹⁾	3,392	254		2,600	2,100	428,397
55	123,679	2,500 ⁽¹⁾	148,892 ⁽¹⁾	140,000 ⁽¹⁾	31,753 ⁽¹⁾	10,115 ⁽¹⁾	3,132	423			1,500	361,994
56	142,156 ⁽¹⁾	6,000 ⁽¹⁾	190,976 ⁽¹⁾	109,400 ⁽¹⁾	31,588 ⁽¹⁾	11,082 ⁽²⁾	2,773 ⁽²⁾	852 ⁽²⁾			1,800 ⁽²⁾	496,627
57	161,292 ⁽¹⁾	4,500 ⁽¹⁾	189,928 ⁽¹⁾	65,000 ⁽¹⁾	51,809 ⁽²⁾	15,886 ⁽²⁾	2,773 ⁽²⁾	2,779 ⁽²⁾	0 ⁽²⁾	0	1,685 ⁽²⁾	495,632
58	168,794 ⁽¹⁾	9,870 ⁽¹⁾	189,845 ⁽¹⁾	60,185 ⁽¹⁾	51,916 ⁽²⁾	11,032 ⁽²⁾	2,759 ⁽²⁾	1,542 ⁽²⁾	0 ⁽²⁾	0	1,500 ⁽²⁾	497,443
59	241,090 ⁽¹⁾	9,330 ⁽¹⁾	163,993 ⁽¹⁾	54,514 ⁽¹⁾	46,459 ⁽²⁾	17,761 ⁽²⁾	2,789 ⁽²⁾	1,542 ⁽²⁾	360 ⁽²⁾		1,400 ⁽²⁾	539,238
1960	179,479 ⁽¹⁾	12,000 ⁽¹⁾	167,597 ⁽¹⁾	71,392 ⁽¹⁾	71,006 ⁽¹⁾	16,536 ⁽²⁾	2,789 ⁽²⁾	1,542 ⁽²⁾	440 ⁽²⁾	0	405 ⁽²⁾	523,184
61	208,547 ⁽¹⁾	23,200 ⁽¹⁾	170,413 ⁽¹⁾	78,260 ⁽¹⁾	73,637 ⁽²⁾	23,095 ⁽²⁾	2,760 ⁽²⁾	1,542 ⁽²⁾	1,800 ⁽²⁾	0	200 ⁽²⁾	583,454
62	217,029 ⁽¹⁾	30,000 ⁽¹⁾	176,695 ⁽¹⁾	83,910 ⁽¹⁾	73,317 ⁽²⁾	28,465 ⁽²⁾	2,760 ⁽²⁾	4,187 ⁽²⁾	2,178 ⁽²⁾	0	200 ⁽²⁾	618,741
63	229,652 ⁽¹⁾	25,000 ⁽¹⁾	170,776 ⁽¹⁾	78,695 ⁽¹⁾	64,510 ⁽²⁾	27,012 ⁽²⁾	2,785 ⁽²⁾	4,511 ⁽²⁾	2,315 ⁽²⁾	0	200 ⁽²⁾	605,460
64	235,015 ⁽¹⁾	24,000 ⁽¹⁾	166,726 ⁽¹⁾	86,192 ⁽¹⁾	70,573 ⁽²⁾	19,378 ⁽²⁾	2,788 ⁽²⁾	4,511 ⁽²⁾	2,523 ⁽²⁾	0	200 ⁽²⁾	611,907
65	209,005 ⁽¹⁾	2,750 ⁽¹⁾	143,512 ⁽¹⁾	44,526 ⁽¹⁾	22,778 ⁽²⁾	9,805 ⁽²⁾	2,789 ⁽²⁾	4,511 ⁽²⁾	2,523 ⁽²⁾	0	1,500 ⁽²⁾	443,699
66												
67												
68												
69												
1970												
71												
72												

NOTE Acreage figures from early Irrigation Company annual reports, except as noted below

(1) From "Report on Return Flows from Irrigation Districts in Alberta, 1951 to 1965" by Water Resources Branch, Department of Northern Affairs and National Resources, Calgary.

(2) Information by letter from Alberta Water Resources Office, Edmonton.

E No records - estimated -

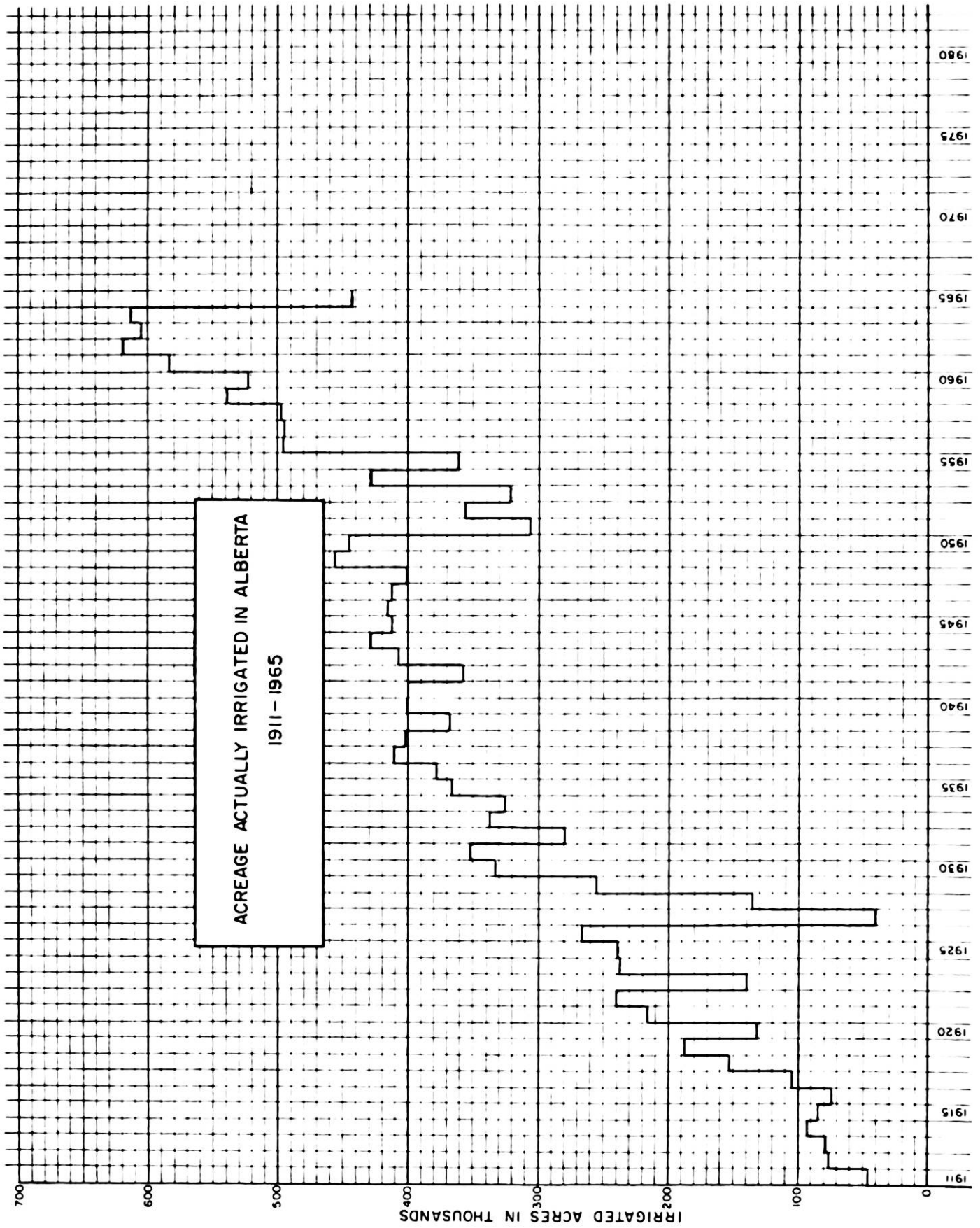


TABLE 1

SUMMARY OF FINAL ALLOCATIONS IN THE SASKATCHEWAN RIVER BASIN					
PROJECT	PROV- INCE	Irrig- able Acreage Acres	Alloca- tion Ac-ft.	Recom- mended by Water Board	Recommen- dation approved by O.I.C. from all Govern- ments
St. Mary-Milk River Project..	Alberta	465,000	796,000	6-5-49	4-7-51
Western Irrig. District.....	"	50,000	85,700	"	"
Eastern Irrig. District.....	"	281,000	562,000	"	"
Bow River Irrig. District...	"	240,000	478,534	"	"
United Irrig. District.....	"	34,000	51,000	"	"
Leth. Northern Irr. District	"	96,135	150,000	"	"
Mountain View Irr. District.	"	3,600	6,000	"	"
Leavitt Irrig. District.....	"	4,400	7,000	"	"
Aetna Irrig. District.....	"	7,300	13,000	"	"
MacLeod Irrig. District.....	"	5,000	8,000	"	"
Private Projects.....	"	70,000	80,000	"	"
Saskatoon - Municipal.....	Sask.		11,426	18-12-50	8-8-51
- Steam Plant.....	"		31,260	"	"
Caron - Moose Jaw Div.....	"		12,600	"	"
Swift Current Irr. Project..	"	21,000	55,000	"	"
<u>Small Projects</u>					
- Main Stem.....			1,500	"	"
- Swift Current Basin..			5,600	"	"
- Other Tributaries....			4,500	"	"

SUMMARY OF TENTATIVE ALLOCATIONS

IN THE SASKATCHEWAN RIVER BASIN

Regina-Moose Jaw Div.....	Sask.		29,000	18-12-50	8-8-51
French Flats-Valley Park....	"	6,502	11,140	"	"
South Sask. River Project...	"	470,000	960,000	15-5-53	-53

TABLE 1 (Cont'd)

SUMMARY OF RESERVATIONS IN GOOD STANDING
IN THE SASKATCHEWAN RIVER BASIN

PROJECT	PROV- INCE	Irri- gable Acreage Acres	Alloca- tion Ac.Ft.	Recom- mended by Water Board	Recommen- dation approved by O.I.C. from all Govern- ments	
Red Deer (Wm. Pearce).....	Alberta	250,000	700,000	18-12-58	(Original Reservation)	EXPIRED Dec.1960
				1-12-60	(Renewed)	EXPIRED Dec.1962
				16-1-63	(Renewed)	EXPIRED Dec. 1964
				10-11-64	(Renewed)	EXPIRES Dec. 1966
Small Projects.....	Alberta & Sask.	1,000,000		2-12-59	(Original reservation)	EXPIRED Dec. 1960
				1-12-60	(Renewed)	EXPIRED Dec. 1961
				6-12-61	(Renewed)	EXPIRED Dec.1962
				16-1-63	(Renewed)	EXPIRED Dec. 1963
				6-11-63	(Renewed)	EXPIRED Dec. 1964
				21-9-65	(Renewed)	EXPIRES Dec. 1965

TABLE 1 (Cont'd)

BATTLE CREEK BASIN

PROJECT	Province	Irrigable acres	Allocation Ac.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	10,946	18-12-50	8-8-51
Richardson-MacKinnon Project	Sask.	-	3,054	18-12-50	8-8-51
<u>TENTATIVE ALLOCATIONS</u>					
Small Projects	Sask.	-	2,000	18-12-50	8-8-51
Vidora Project	Sask.	2,136	3,360	18-12-50	8-8-51
Consul Project	Sask.	1,500	2,400	18-12-50	8-8-51

MIDDLE CREEK BASIN

PROJECT	Province	Irrigable acres	Allocation Ac.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	1,027	18-12-50	8-8-51
Middle Cr. Reservoir Losses	Sask.	-	2,335	18-12-50	8-8-51

LODGE CREEK BASIN

PROJECT	Province	Irrigable acres	Allocation Ac.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	600	18-12-50	8-8-51
Spangler Project	Sask.	1,322	2,970	18-12-50	8-8-51

QU'APPELLE RIVER BASIN

PROJECT	Province	Irrigable acres	Allocation Ac.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	20,000	18-12-50	8-8-51